SECTION 15186 - STEAM CONDENSATE PUMPS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes condensate pumps for low-pressure steam systems.

B. Related Sections include the following:
1. Division 15 Section "Motors" for general motor requirements for steam condensate pumps.

1.3 SUBMITTALS

A. Product Data: Include certified performance curves and rated capacities; shipping, installed, and operating weights; furnished specialties; and accessories for each type of product. Indicate pump's operating point on curves. Include receiver capacity and material.

B. Shop Drawings: Show pump layout and connections. Include Setting Drawings with templates for installing foundation and anchor bolts and other anchorages.
1. Wiring Diagrams: Detail wiring for power, signal, and control systems and differentiate between manufacturer-installed and field-installed wiring.

C. Maintenance Data: For steam condensate pumps to include in maintenance manuals specified in Division 1.

1.4 QUALITY ASSURANCE

A. Product Options: Drawings indicate size, profiles, connections, and dimensional requirements of steam condensate pumps and are based on the specific types and models indicated. Other manufacturers' pumps with equal performance characteristics may be considered. Refer to Division 1 Section "Substitutions."

B. Regulatory Requirements: Fabricate and test steam condensate pumps to comply with HI 1.1-1.5, "Centrifugal Pumps for Nomenclature, Definitions, Application and Operation," and HI 1.6, "Centrifugal Pump Tests."

C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction.

D. ASME Compliance: Fabricate and label receivers to comply with ASME Boiler and Pressure Vessel Code: Section VIII, "Pressure Vessels," Division 1.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Manufacturer's Preparation for Shipping: Clean flanges and exposed machined metal surfaces and treat with anticorrosion compound after assembly and testing. Protect flanges, pipe openings, and nozzles with wooden flange covers or with screwed-in plugs.

B. Store steam condensate pumps in dry location.

C. Retain protective covers for flanges and protective coatings during storage.

D. Protect bearings and couplings against damage from sand, grit, and other foreign matter.

E. Comply with pump manufacturer's written rigging instructions.

1.6 COORDINATION

A. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in Division 3 Section "Cast-in-Place Concrete."

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Floor-Mounting, Centrifugal, Steam Condensate Pumps:
a. ITT Fluid Handling; Div. of ITT Fluid Technology Corp.
b. Skidmore Div.; Vent-Rite Valve Corp.
c. Spirax Sarco, Inc.
d. Weil Pump Company, Inc.

2.2 ELECTRIC, STEAM CONDENSATE PUMPS

A. Description: Factory-fabricated, packaged, electric-drive pump units; with receiver, pumps, controls, and accessories suitable for operation with low-pressure steam condensate.

B. Configuration: Floor-mounting, simplex unit with receiver and float switch.
1. Receiver: Floor-mounting, close-grained cast iron or welded steel; with externally adjustable float switch and flange for pump mounting.
2. Pump: Centrifugal; close coupled; vertical design; permanently aligned; bronze fitted, and with enclosed bronze case ring and mechanical seal; and mounted on receiver flange.
3. Factory Wiring: Between pump and float switch, for single external electrical connection.

2.3 STEAM CONDENSATE PUMP INSTALLATION

A. Install pumps according to manufacturer's written instructions.

B. Install pumps to provide access for periodic maintenance, including removing motors, impellers, couplings, and accessories.

C. Support pumps and piping separately so piping is not supported by pumps.

D. Install pumps on concrete bases. Anchor pumps to bases using inserts or anchor bolts.

2.4 CONNECTIONS

A. Piping installation requirements are specified in other Division 15 Sections. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Install piping adjacent to machine to allow service and maintenance.

C. Install shutoff and check valves on inlet of pressure-operated units.

D. Install inlet strainer and valved bypass to drain at system return connection.

E. Install check valve, shutoff valve, and throttling valve at pump discharge connections for each pump unit.

F. Install pipe drain to nearest floor drain for overflow and drain piping connections.

G. Install full-size vent piping, terminating in 180-degree elbow at point above highest steam system connection or as indicated.

H. Install electrical connections for power.

I. Electrical power and control wiring and connections are specified in Division 16 Sections.

J. Ground equipment.
1. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

2.5 COMMISSIONING

A. Verify that steam condensate pumps are installed and connected according to the Contract Documents.

B. Verify that electrical wiring installation complies with manufacturer's written instructions and the Contract Documents.

C. Complete installation and startup checks according to manufacturer's written instructions.

D. Clean strainers.

E. Set steam condensate pump controls.

F. Set pump controls for automatic start, stop, and alarm operation.

G. Perform the following preventive maintenance operations and checks before starting:
1. Lubricate bearings.
2. Set float switches to operate at proper levels.
3. Set throttling valves on pump discharge for specified flow.
4. Check motors for proper rotation.
5. Test pump controls and demonstrate compliance with requirements.
6. Replace damaged or malfunctioning pump controls and equipment.
7. Verify that pump controls are correct for required application.

H. Start steam condensate pumps according to manufacturer's written startup instructions.

2.6 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain steam condensate pumps as specified below:
1. Train Owner's maintenance personnel on procedures and schedules for starting and stopping, troubleshooting, servicing, and maintaining pumps.
2. Review data in maintenance manuals
3. Schedule training with Owner, through Architect, with at least seven days' advance notice.

END OF SECTION 15186